



Department of  
**Environment &  
Conservation**

**Oak Ridge Focused Feasibility Study Wastewater  
Dispute:**

CERCLA vs. AEA and the Authority to set Discharge Limits for  
Radionuclides

Steven R. Stout, Senior Counsel 3/5/2021 ECOS

# Background : Oak Ridge Reservation

- Oak Ridge – Manhattan Project origins of three parts of the site: Y-12, K-25 and X-10
- K-25 – large building name also site name former use for uranium enrichment by gaseous diffusion process
  - now East Tennessee Technology Park (ETTP); no current mission
  - a legacy site Community Reuse Organization of East Tennessee (CROET) and land transfers
- X-10, the Oak Ridge National Laboratory (ORNL),
  - a continuing mission site for scientific research ;
- Y-12, National Nuclear Security Administration(NNSA),
  - continuing mission: maintain nuclear weapons arsenal including repository for highly enriched uranium and massive new uranium processing facility (UPF) under construction
- Oak Ridge Environmental Management (OREM) touches all three sites and other areas on ORR used for disposal like Bear Creek Valley west of Y-12
  - ETTP first in line ; early 2000's accelerated cleanup plan goal not achieved and now different contractor completing Vision 2020 and working on Vision 2024
  - Complications of working around continuing missions and modernization for CERCLA under authority of CERCLA 120 Federal Facilities Agreement (FFA) and under state hazardous statutory authorities corresponding to RCRA and CERCLA

## Background: Onsite Landfill(s ?)

- Concept for centralized onsite disposal to facilitate other CERCLA response actions in 1990's
- Environmental Management Waste Management Facility (EMWMF)
  - Authorized by 1999 Record of Decision (ROD) signed by three parties to FFA authorizing development of an onsite waste disposal facility
  - meant to receive different types of for disposal of wastes in three main categories from other parts of ORR, and used predominantly for demolition debris and to lesser extent soils from ETPP site
  - Sited under CERCLA through onsite permit waiver, sec. 121(e) as hybrid disposal site meeting the substantive Applicable and Relevant and Appropriate Requirements (ARARs) of three major environmental regulatory statutes:
    - Atomic Energy Act (AEA) for low level radioactive wastes
    - Resource Conservation and Recovery Act ( RCRA) hazardous waste and mixed wastes
    - Toxic Substances Control Act (TSCA) - PCBs
- More recent proposal last decade for new similar facility, Environmental Management Disposal Facility (EMDF)



# Landfill Discharges

- Now leading up to the dispute which was over limits for discharges of radionuclides existing and a proposed new landfill to Bear Creek, which is small creek that from headwater to mouth lies within the boundaries of ORR
- Two types of landfill wastewater: leachate and “contact water” and the EMWMF ROD assumed treatment of leachate at another ORR facility to which the leachate was transported by tanker trucks
- But from the beginning 2002-2003 experienced problems with managing the larger volume (10x) of “contact water”, i.e., contaminated stormwater, and practice allowed for direct discharge to Bear Creek after sampling
- Practice of direct discharge did not occur without knowledge of regulators, but there was no provision for it in the EMWMF ROD and, hence, the matter of discharge limits was never addressed in the context of the FFA in primary document

## Setting Limits

- DOE complied with its own internal order – now 458.1 under its “self-regulating authority” under the AEA but not under the CERCLA decision
- AEA is different than CERCLA: dose-based vs. risk-based (and ARAR-based)
- EPA issued guidance in 1997 challenging proposed nuclear reactor site decommissioning regulations by Nuclear Regulatory Commission (NRC) which regulates commercial and utility nuclear reactors but not DOE under AEA
  - Allowed Dose of 25 millirem above the CERCLA risk range CERCLA 121 and 40 CFR 300.430 -  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$
  - Most DOE and NRC limits were outside the risk range as translated by EPA to 15 (later 12) mrem at upper end of range
  - One NRC regulation specific to low level waste disposal sites calculated dose differently, 10 CFR 61.41 - 25 millirems to the whole body, 75 millirems to the thyroid, and 25 millirems to any other organ of any member of the public 25/75/25

**CWA does not regulate radionuclides covered by AEA but  
CERCLA does**

- 1976 Supreme Court of the United States decision upheld EPA's exclusion of "source, byproduct and special nuclear materials" regulated under AEA
- CERCLA 1980 section 101(14), as amended, defines "hazardous substance" by referencing other environmental statutes, including: CAA sec. 112 NESHAP covering radionuclides
  - not mentioning the AEA

## Resolving the Issue

- Finally, the issue of discharges from the existing landfill would be addressed
- As part of another dispute DOE agreed to develop a Focused Feasibility Study for the wastewater discharges.
- When the D2 document was submitted neither TDEC nor EPA approved the document. Radionuclide discharge limits was one of the issues in the document.
- There was disagreement about the assumptions to be used for fish ingestion to calculate the risk using a tool EPA developed called the PRG ( Preliminary Remediation Goal) calculator. And the most restrictive pathway for CERCLA risk was via this pathway for eating fish caught in Bear Creek.
- The dispute remained at the informal level from March 2016 to August 2018 when EPA elevated the dispute, framing the radionuclides issues from the overall document as ones to be addressed through the formal dispute process. And it raised the argument that the CWA requirements should be ARAR as relevant and appropriate. Earlier, there was an awareness of a similar dispute at the DOE Paducah facility in which the ARARs issued were raised but not fully resolved because of a “settlement”.

## The March to Atlanta and then to Washington, DC

- The FFA parties engaged at the different levels of management for the process of formal dispute, failing to reach an agreement.
- The Regional Administrator, Mary Walker, for EPA Region IV prepared a final decision In March 2019 which DOE asked the EPA Administrator, Andrew Wheeler, in Washington, DC to review in May 2019.
- And there was a lot of effort over a long time to reach a “settlement” while the decision was pending under review at the EPA Headquarters.
- TDEC supported the underlying premise of using the CWA as a source of ARARs to be applied to regulate discharges of radionuclides by correspondence emphasizing a couple of points:
  - 1) the recreational use classification of the creek as a potential use although not an existing one
  - 2) The use of a consistent method of addressing toxicity and carcinogenic risk for the recreational use classification.
  - Apologies to George Orwell who wrote Animal Farm: All carcinogens are equal.
  - Or perhaps some are more “equal” than others.



# Finally, the decision

- 12/31/2020

- The EPA Administrator recognized CWA for water-quality based standards recognized as relevant and appropriate and included as ARAR
  - DOE argued no part of the CWA was applicable since there was the exclusion of radionuclides regulated under the AEA from the CWA regulatory definition of "pollutant". (The argument states can usually make about greater stringency in their requirements than federal regulations runs into an argument about federal preemption in this instance.)
  - But the Administrator accepted the reasoning that not being applicable does not necessarily lead to concluding a requirement is not relevant and appropriate. So, the CWA could be argued as relevant and either appropriate or not based on reasons other than the lack of direct applicability.
  - But the EPA Administrator only recognized the water quality - based aspect of the CWA regulations as ARAR but declined to decide other important requirements like technological treatment and antidegradation would be brought into the CERCLA decision.
- The EPA Administrator rejected most provisions argued by DOE as ARAR sourced in the AEA because most of these exceed risk range  $10^{-4}$  to  $10^{-6}$ 
  - Only keeping the two sections, 10 CFR 61.41 and 61.43

- Tennessee narrative criteria and designated uses set  $10^{-5}$
- Authority to interpret ARARs and flexibility to consider site-specific information to evaluate exposure risk
- Not require default assumptions in CWA guidance regarding fish consumption
- Consider reasonably anticipated future land use, thus location of exposure will depend on DOE's land use designations (look at EUWG and zones in Phase I ROD)

# Thank You

**Steven R. Stout** | Senior Counsel  
Office of the General Counsel  
Tennessee Tower, 2<sup>nd</sup> Floor  
312 Rosa L. Parks Ave., Nashville, TN 37243  
p. 615-532-0138 c. 615-571- 9328  
[steven.stout@tn.gov](mailto:steven.stout@tn.gov)

